HN

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,006	04/17/2001	Limin Wang	GIC-634	6999

20028 7590 01/25/2005

Lipsitz & McAllister, LLC
755 MAIN STREET
MONROE, CT 06468

EXAMINER	
CHANG, SUNRAY	
ART UNIT	**PAPER NUMBER**
2121	

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/836,006	WANG ET AL.	
	Examiner	Art Unit	
	Sunray Chang	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in responsive to the paper filed on December 6th, 2004.

2. Claims 1 – 31 are presented for examination.

Claims 1 – 31 are rejected.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1 – 31 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Anthony Vetro et al. (U.S. Patent No. 6,493,386, and referred to as Vetro hereinafter), and in view of Jay Reimer (IEEE, 1989, 0098 3063/89/0200, A Multi-Rate Transcoder, and referred to as Reimer hereinafter).

(Vetro as set forth above generally discloses the basic inventions.)

4. **Regarding independent claims 1 and 17**, Vetro teaches,

- Transcoder apparatus for an encoded bit stream [Col. 6, Line 33 – 35].
- A data processor [demultiplexer, Col. 4, Line 22] for extracting [extracts, Col. 4, Line 22] overhead data [video object, Col. 4, Line 22 – 23] from said bit stream [compressed bitstream, Col. 4, Line 23];
- A decoder [transcoder, Fig. 3] for at least partially decoding [partially decoded, Col. 2, Line 34] said bit stream [video bit stream, Col. 2, Line 34];
    - Examiner further explains, the switchable transcoder [340, Fig. 3] is considered to inherently have a group of transcoders [Fig. 6] each individually having a decoder and an en-coder as evidenced by the transcoder in Prior Art [Fig. 1].
- A rate control processor [transcoder, Fig. 1] for re-encoding [transcoder, Fig. 1] the at least partially decoded bit stream [partially decoded, Col. 2, Line 34] at different rates [Rin, Fig. 1], to produce multiple re-encoded bit streams having different rates [103, Fig. 1]; and
- A multiplexer [602, Fig. 6] adapted to combine the overhead data [object data, Fig. 6] with each re-encoded bit stream [scaled bitstream, Col. 11, Line 5], thereby providing multiple versions of said encoded bit stream at different rates [switchable transcoder, 340, Fig. 3].

Vetro does not teach multiple re-encoded versions of said bit stream, each version of said bit stream carrying the same content and having different rates.

Reimer teaches multiple re-encoded versions of said bit stream, each version of said bit stream carrying the same content and having different rates [16, 32, and 64 kbit/s PCM, Fig. 1, Page 716], for the purpose of providing a high quality, cost effective medium bit-rate solution.

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Vetro to include "multiple re-encoded versions of said bit stream, each version of said bit stream carrying the same content and having different rates"for the purpose of providing a high quality, cost effective medium bit-rate solution.

5. **Regarding dependent claims 2 and 18**, Vetro teaches,

- Multiplexer provides said multiple versions substantially simultaneously [Fig. 6].

  Examiner further explains, the multiplexer provides output with different object data into log is simultaneous.

6. **Regarding dependent claims 3 and 19**, Vetro teaches,

- Encoded bit stream [compressed bitstream, Col. 6, Line 33 – 34] is a compressed video bit stream [visual content, Col. 6, Line 36]; and
- Transcoder [340, Fig. 3] is located at a streaming video server [300, bitstream delivery system, Fig. 3] for providing said multiple versions to different clients substantially simultaneously [Fig. 6].

- Examiner further explains, the inputs of multiplexer coming from transcoders should be simultaneous and the output of the multiplexer will be simultaneously logged or the output with different object data into log would be scrambled.

7. **Regarding dependent claims 4 and 20**, Vetro teaches,

- Encoded bit stream [compressed bitstream, Col. 6, Line 33 – 34] is a compressed video bit stream [visual content, Col. 6, Line 36]; and
- Overhead data comprises at least one of video object sequence (VOS) [Col. 5, Line 38], video object (VO) [Col. 4, Line 22 – 23], video object layer (VOL) [Col. 14, Line 48], video object plane (VOP) [Col. 14, Line 49], group of video object planes (GOV) [Col. 14, Line 49] and motion vector (MV) data [M motion, Col. 16, Line 2].

8. **Regarding dependent claims 5 and 21**, Vetro teaches,

- Overhead data [video object, Col. 14, Line 46 – 50] is extracted from packet headers [VOP header, Col. 14, Line 49] contained in said encoded bit stream [elementary bitstream, Col. 14, Line 46].

9. **Regarding dependent claims 6 and 22**, Vetro teaches,

- Rate control processor [transcoder, Fig. 3] re-encodes said at least partially decoded bit stream [partially decoded, Col. 2, Line 34] a plurality of times [objects 1 – N, Fig. 6] to produce said multiple re-encoded bit streams on a sequential basis [log, 603, Fig. 6].

10. **Regarding dependent claims 7 and 23**, Vetro teaches,

- Rate control processor [transcoder, Fig. 3] re-encodes said at least partially decoded bit stream [partially decoded, Col. 2, Line 34] separately for each of the multiple re-encoded bit streams [objects transcoder 1 – N, Fig. 6].

11. **Regarding dependent claims 8 and 24**, Vetro teaches,

- Encoded bit stream [compressed input bitstream, Col. 4, Line 24] is received at a first rate [first bit rate, Col. 4, Line 25]; and
- Rate control processor [transcoder, Col. 4, Line 25] operates [converts, Col. 4, Line 25] at a second rate [second bit rate, Col. 4, Line 27] of at least N times said first rate, where N is the number of re-encoded bit streams provided [the 2nd bit rate is less than the first bit rate, Col. 4, Line 31 – 32];
- The re-encoded bit streams [elementary output bitstream, Col. 4, Line 29 – 30] are all provided substantially concurrently [composed into, Col. 4, Line 29 – 30] with the original compressed video bit stream [compressed bitstream, Col. 4, Line 30].

12. **Regarding dependent claims 9 and 25**, Vetro teaches,

- First functions [various-length decoding, Col. 13, Line 65] that do not effect the rates of the re-encoded bit streams are performed [partial decoding, Col. 13, Line 65] only once on said encoded bit stream; and
- Second functions [re-quantization, Col. 15, Line 25] that effect said rates are performed separately for each re-encoded bit stream [coded block pattern, Col. 15, Line 19].

13. **Regarding dependent claims 10 and 26**, Vetro teaches,

- Encoded bit stream [compressed input bitstream, Col. 4, Line 24] is received at a first rate [first bit rate, Col. 4, Line 25]; and
- First functions comprise at least one of variable length decoding and dequantization [various-length decoding, Col. 13, Line 65]; and
- Second functions comprise at least one of requantization, variable length coding, and motion compensation [re-quantization, Col. 15, Line 25].

14. **Regarding dependent claim 11**, Vetro teaches,

- Rate control processor [transcoder, Fig. 6] comprises a plurality of encoders [transcoder, Fig. 6] operating in parallel [Fig. 6] to produce said multiple re-encoded bit streams [Fig. 3 and 6].

15. **Regarding dependent claims 12 and 27**, Vetro teaches,

- Re-encoded bitstreams are provided as variable bit-rate streams [new rate, Fig. 3 and 6].

16. **Regarding dependent claims 13 and 28**, Vetro teaches,

- Re-encoded bitstreams are provided as constant bit-rate streams [new rate, Fig. 3 and 6].

17. **Regarding dependent claims 14 and 29**, Vetro teaches,

- Processor cycles of said rate control processor are monitored [This function best models the optimal quality that can be achieved for a given bit rate and user device, Col. 8, Line 38 – 39]; and
- At least one processing step is skipped in the event the number of processing cycles available to complete a rate control operation may otherwise be insufficient [The inverse quantization and inverse DCT can be omitted, Col. 13, Line 66 – 67].

18. **Regarding dependent claims 15 and 30**, Vetro teaches,

- Encoded bit stream [compressed bitstream, Col. 6, Line 33 – 34] is a compressed video bit stream [visual content, Col. 6, Line 36]; and
- One of a motion compensation step and a DCT step are skipped for a bi-directionally predicted (B) frame in the event the number of processing cycles available to complete a rate control operation may otherwise be insufficient [The inverse quantization and inverse DCT can be omitted, Col. 13, Line 66 – 67].

19. **Regarding dependent claims 16 and 31**, Vetro teaches,

- re-encodes [Fig. 1] said at least partially decoded bit stream [partially decoded, Col. 2, Line 34] a plurality of times [objects 1 – N, Fig. 6] to produce said multiple re-encoded bit streams on a sequential basis [log, 603, Fig. 6]; and
- selectively skips said at least one processing step for fewer than all of said multiple re-encoded bit streams [The inverse quantization and inverse DCT can be omitted, Col. 13, Line 66 – 67].

Response to Amendment

Claim Rejections - 35 USC § 102

20. Applicants' argument regarding "Vetro does not teach multiple re-encoded versions of said bit stream, each version of said bit stream carrying the same content and having different rates" (Page 9, line 24 – 27) is agreed with. Yet, Vetro does not used for rejecting this subject matter, Reimen teaches "multiple re-encoded versions of said bit stream, each version of said bit stream carrying the same content and having different rates" as set forth in current office action.

Conclusion

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sunray Chang whose telephone number is (571) 272-3682. The examiner can normally be reached on M-F 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-746-3506.

Sunray Chang
Patent Examiner
Group Art Unit 2121
Technology Center 2100
U.S. Patent and Trademark Office

Anthony Knight
Supervisory Patent Examiner
Group 3600

January 11, 2005